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Docket No. F-7987

Ser. No. 10/673,780

REMARKS

Claims 1-10 and 12-17 are pending, including independent claims 1-3, 6 and 12-18 and relating to 8 differing embodiments, in which Claim 1 covers embodiments 1-5, Claim 2 covers embodiment 6, Claim 3 covers embodiment 7, Claim 4 covers embodiments 1-4, Claim 5 covers embodiments 1-2, claims 6-9 cover embodiment 6, claims 10 and 13 cover embodiment 2, and claims 12 and 14-17 respectively cover embodiments 3 and 5-8. Claim 18 has been cancelled.

The Examiner has rejected Claim 17, covering embodiment 9, under 35 USC § 112, first paragraph and the rejection has been overcome by amending the claim to recite:

“a back yoke disposed adjacent ~~attached~~ to an outer circumferential part of said sleeve”

The Examiner has rejected Claim 6, covering embodiment 6, under 35 USC § 112, second paragraph and the rejection has been overcome by amending the claim to recite:

“a holder connected to said back ~~hub~~ yoke and projecting outwardly along a direction of a core of said shaft and at a right angle to said shaft”

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Claim 1, covering embodiments 1-5, has been rejected under 35 USC § 102(b) as being anticipated by Yamamoto (USPN 6069429). Claim 3, covering embodiment 7, has been rejected under 35 USC § 102(b) as being anticipated by Obata (EP 1246182A2). Claim 18, covering embodiment 9, is rejected under 35 USC § 102(b) as being anticipated by Yamashita (USPN 4523800). Claim 4, directed to embodiments 1-4, is rejected under 35 USC § 103(a) as being unpatentable over Yamamoto as modified by Ackerman (USPN 57714828). Claim 5, directed to the first and second embodiments, and Claim 7, directed to the sixth embodiment, are rejected under 35 USC § 103(a) as being unpatentable over Yamamoto as modified by Ackerman and Sung (USPN 6618214). Claims 6-9, covering embodiment 6, claims 10 and 13, covering embodiment 2, and claims 12 and 14, respectively covering embodiments 3 and 5, are rejected under 35 USC § 103(a) as being unpatentable over Yamamoto as modified by Ackerman, Sung and Komura (USPN 6417590). Claims 16 and 17, respectively directed to embodiments 7 and 8, are rejected under 35 USC § 103(a) as being unpatentable over Obata as modified by Ackermann, Sung and Komura.

Applicant respectfully disagrees and has amended the claims and provided the following traverse.

Based on the amendments to the claims, each claim now recites the thrust

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magnets 16 and 17. As a result of the thrust magnets, it is possible to maintain floating in the direction of thrust. Furthermore, less starting torque is required as compared with Ackerman because the bearings touch in Ackerman when the device therein is stopped providing less durability when the motor is switched on and off. The bearings in the present invention, on the other hand, do not touch so the system is more durable during on and off switching and there is less loss during rotation. Furthermore, when rotational speed increases, the parts of the thrust fluid bearing increase the viscous drag (i.e., the loss) and the present invention provides for a minimum loss. Moreover, Ackerman is more expensive to manufacture because a special processing technology is needed. That is, because the thrust shaft generates the dynamic pressure, the size accuracy in terms of microns is needed. The use of the magnets in the present invention reduce the manufacturing cost comparably.

Moreover, each claim is already directed to an aerodynamic bearing. This is advantageous because of the broader temperature range over which the bearing is operable. In comparison, oil dynamic bearings used on hard disks are limited in application to the temperature range of the used oil.

Similarly, there is an air space surrounding the thrust magnet. The resulting structure maintains changes in the direction of rapid thrust, creating a

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damping effect, because it connects through the bearing where the clearance is narrow, and the resistance to vibration and impact is large regardless of rotational states when stopping, starting, or running. As the effect of cushioning the impact is not achieved by Ackermann, power is applied directly to the thrust shaft and the shaft is damaged.

Accordingly, the claims as amended are patentable over the art.

Applicant respectfully requests a one month extension of time for responding to the Office Action. **The fee of \$120.00 for the extension is provided for in the charge authorization presented in the PTO Form 2038, Credit Card Payment form, provided herewith.**


If there is any discrepancy between the fee(s) due and the fee payment authorized in the Credit Card Payment Form PTO-2038 or the Form PTO-2038 is missing or fee payment via the Form PTO-2038 cannot be processed, the USPTO is hereby authorized to charge any fee(s) or fee(s) deficiency or credit any excess payment to Deposit Account No. 10-1250.

In light of the foregoing, the application is now believed to be in proper form for allowance of all claims and notice to that effect is earnestly solicited.


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